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Semtech accelerates time to market of RF ASIC development with Model-Based Design

MATLAB and Simulink Help Accelerate Development of Optimized Digital Receivers for Wireless RF Devices

NATICK, Mass. – November 1, 2011 – [MathWorks](#) announced [Semtech Corporation](#) used [MATLAB](#) and [Simulink](#) products to reduce development time of optimized digital receivers in wireless RF devices. Semtech, a leading supplier of high-quality analog and mixed-signal semiconductors, adopted [Model-Based Design](#) tools to create FPGA prototypes 50% faster than before, reduce verification time from weeks to days and shorten development time by 33%.

A Simulink model based on system specifications helped engineers rapidly evaluate design ideas and improved collaboration among engineering teams. Simulink and [Simulink HDL Coder](#) enabled engineers to create prototypes in a few weeks and eliminate hand-coding. Using [EDA Simulator Link](#), Semtech engineers reused the Simulink system model to test multiple critical points in the design, verify the VHDL in less than a day, and reduce overall verification time from weeks to days.

“We were tasked with the challenges of accelerating the development time for a digital receiver and finding a way to improve our development workflow. MathWorks tools enabled us to explore more alternatives and new features, and ultimately deliver a more optimized, betterperforming design,” said Frantz Prionon, IC design engineer at Semtech. “With Simulink and Simulink HDL Coder, once we have simulated the model we can generate VHDL directly, prototype on an FPGA, and fully verify the VHDL implementation. It saves a lot of time, and the generated code contains some optimizations we hadn’t thought of.”

“Semtech represents the leading edge of semiconductor companies that are transitioning to new methodologies for highly integrated mixed-signal devices. With Simulink and Model-Based Design, Semtech was able to evaluate multiple design ideas at the prototyping stage and eliminate bottlenecks in their development workflows,” said Ken Karnofsky, senior strategist for signal processing applications, MathWorks. “Further, automatic HDL code generation with Simulink HDL Coder allowed Semtech to eliminate coding errors and quickly create a working FPGA prototype.”

[Signal Processing Toolbox](#), [DSP System Toolbox](#), [Fixed-Point Toolbox](#) and [Simulink Fixed-Point](#) all helped further accelerate the development of the digital receiver. Model-Based Design has enabled Semtech to transition to a fully digital platform, advance digital and mixed-signal designs, and reduce power consumption while supporting design-flow integration with other products such as [Mentor Graphics® Questa® Advanced Simulator](#). Semtech is currently working on an ASIC implementation of the receiver.

More details on Semtech’s use of MathWorks tools can be found in the user story, “Semtech Speeds Development of Digital Receiver FPGAs and ASICs” available at: http://www.mathworks.com/company/user_stories/Semtech-Speeds-Development-of-Digital-Receiver-FPGAs-and-ASICs.html?by=company

About MathWorks

MathWorks is the leading developer of mathematical computing software. MATLAB, the language of technical computing, is a programming environment for algorithm development, data analysis, visualization, and numeric computation. Simulink is a graphical environment for simulation and Model-Based Design of multidomain dynamic and embedded systems. Engineers and scientists worldwide rely on these product families to accelerate the pace of discovery, innovation, and development in automotive, aerospace, electronics, financial services, biotech-pharmaceutical, and other industries. MathWorks products are also fundamental teaching and research tools in the world’s universities and learning institutions. Founded in 1984, MathWorks

employs more than 2,200 people in 15 countries, with headquarters in Natick, Massachusetts, USA.

For additional information, visit www.mathworks.com.

About Semtech

Semtech Corporation is a leading supplier of analog and mixed-signal semiconductors for high-end consumer, computing, communications and industrial equipment. Products are designed to benefit the engineering community as well as the global community. The company is dedicated to reducing the impact it, and its products, have on the environment. Internal green programs seek to reduce waste through material and manufacturing control, use of green technology and designing for resource reduction. Publicly traded since 1967, Semtech is listed on the NASDAQ Global Select Market under the symbol SMTC.

For more information, visit <http://www.semtech.com>.

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